Volunteer Lake Assessment Program Individual Lake Reports

CRESCENT LAKE, ACWORTH, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	2,925	**Max. Depth (m):**	7.3	**Flushing Rate (yr^{1})**	3.7
Surface Area (Ac.):	116	**Mean Depth (m):**	3.2	**P Retention Coef:**	0.53
Shore Length (m):	5,100	**Volume (m^3):**	1,526,500	**Elevation (ft):**	1215

TROPHIC CLASSIFICATION

Year	Trophic class
1979	MESOTROPHIC
1992	MESOTROPHIC

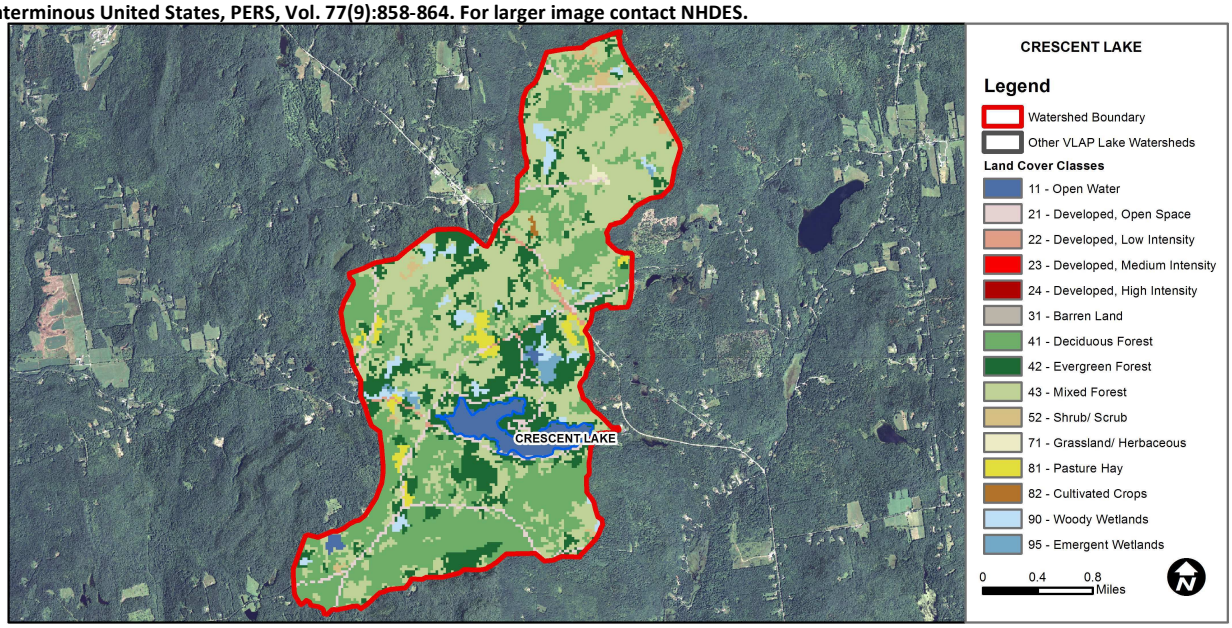
KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (% sat)	Cautionary	< 10 samples and 1 exceedance of criteria. More data needed.
	Chlorophyll-a	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
Primary Contact Recreation	E. coli	Cautionary	One exceedance of single sample criteria but not enough data to calcuate geometric mean. More data needed.
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of criteria.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	3.91	Barren Land	0	Grassland/Herbaceous	0.16
Developed-Open Space	3.56	Deciduous Forest	31.76	Pasture Hay	1.93
Developed-Low Intensity	0.55	Evergreen Forest	16.45	Cultivated Crops	0.1
Developed-Medium Intensity	0	Mixed Forest	36.96	Woody Wetlands	2.58
Developed-High Intensity	0	Shrub-Scrub	1.31	Emergent Wetlands	0.76

VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS
CRESCENT LAKE, ACWORTH, NH
2012 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS (*Refer to Table 1 and Historical Deep Spot Data Graphic)*

- **CHLOROPHYLL-A:** Average chlorophyll concentrations decreased in 2012. Historical trend analysis indicates a relatively stable trend since monitoring began.
- **CONDUCTIVITY/CHLORIDE:** Conductivity levels are average for most NH lakes. Epilimnetic (upper water layer) chloride concentrations were low.
- **E. COLI:** E. coli levels were well below state standards for public beaches and surface waters.
- **TOTAL PHOSPHORUS:** Deep spot phosphorus levels decreased slightly in 2012. Historical trend analysis indicates a relatively stable epilimnetic phosphorus trend since 2000. Phosphorus levels were elevated in Northeast Inlet in August. Turbidity was also elevated suggesting low flow conditions and sediment contamination in the sample.
- **TRANSPARENCY:** Transparency increased slightly in 2012; however historical trend analysis indicates a significantly decreasing (worsening) lake transparency since monitoring began.
- **TURBIDITY:** Deep spot and tributary turbidities were relatively low, however the Northeast Inlet experienced elevated turbidity in August indicating potential sediment contamination due to low flow conditions.
- **PH:** Average deep spot pH levels were below desirable and potentially critical to aquatic life.
- **RECOMMENDED ACTIONS:** Chlorophyll and phosphorus levels are relatively stable; however lake transparency is worsening (decreasing). This indicates a potential increase in suspended sediments possibly linked to stormwater runoff. Identify sites within the watershed that contribute to sediment erosion and use Best Management Practices or the "NH Homeowners Guide to Stormwater Management" to reduce stormwater and sediment flow into the lake.

Dissolved Oxygen & Temperature Profile

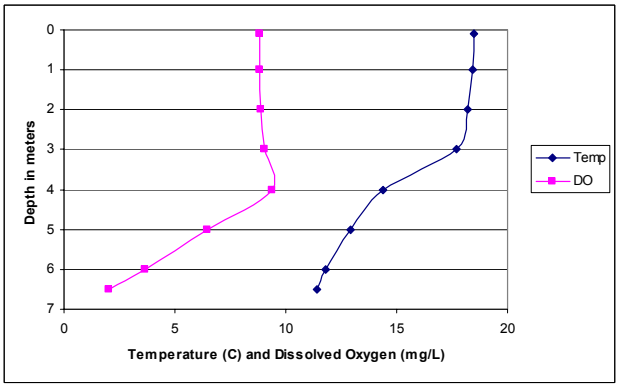


Table 1. 2012 Average Water Quality Data for CRESCENT LAKE

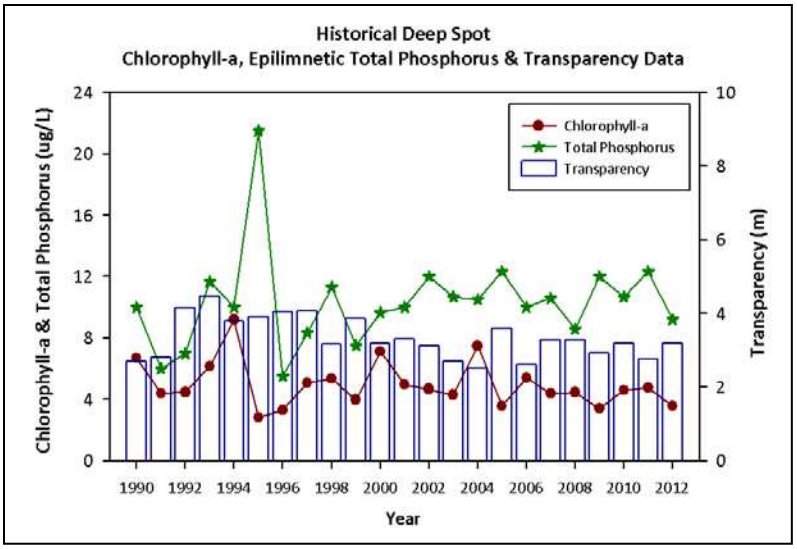
Station Name	Alk.	Chlor-a	Chloride	Cond.	E. Coli	Total P	Trans.		Turb.	pH
	mg/l	ug/l	mg/l	uS/cm	#/100ml	ug/l	m		ntu	
							NVS	VS		
#4 West Inlet				48.7		12			0.94	6.23
Dam Outlet				39.8	1	8			1.06	6.43
Deep Epilimnion	4.7	3.58	8	40.3		9	3.19	3.6	1.22	6.48
Deep Hypolimnion				42.3		10			1.43	6.16
Northeast Inlet				38.2	3	26			1.88	6.61

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: < 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: 6.5-8.0 (unless naturally occurring)

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation
Chlorophyll-a	Stable	Data not significantly increasing or decreasing.
Transparency	Degrading	Data significantly decreasing (worsening).
Phosphorus (epilimnion)	Stable	Data not significantly increasing or decreasing.



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